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| 10/583,298 | 06/16/2006 | Bharat I. Chaudhary | 64126 US | 2653 |
| <div>109 7590 08/18/2009</div> <div>The Dow Chemical Company Intellectual Property Section P.O. Box 1967 Midland, MI 48641-1967</div> | | | | |
| EXAMINER | | | | |
| BOYLE, ROBERT C | | | | |
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| 1796 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,298

Applicant(s)

CHAUDHARY ET AL.

Examiner

ROBERT C. BOYLE

Art Unit

1796

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Response to Amendment

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Any rejections stated in the previous Office Action and not repeated below are withdrawn. In particular, the anticipation rejection in view of Boutillier (US 6,255,402) is withdrawn. Claims 1-2, and 5-6 are pending. Claims 3-4 have been cancelled.
3. The new grounds of rejection set forth below are necessitated by applicant's amendment filed on June 17, 2009. In particular, claims 1 and 2 have been amended to include limitations from the specification specifying the organic peroxide used. Thus, the following action is properly made FINAL.

Claim Rejections - 35 USC § 102

4. Claims 1-2 and 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Bertin (WO 00/63260). As the cited WO patent is in a non-English language, the English equivalent, US 6,620,892 (hereafter "Bertin") has been utilized in place of WO '260. All column and line number citations are made with respect to the above-mentioned US document.
5. As to claims 1-2, Bertin teaches a composition of a propylene polymer, 2,5-bis-(t-butylperoxy)-2,5-dimethyl-hexane and 4-hydroxy-TEMPO where the stable free radicals are introduced into the polymer (abstract; column 1, line 45-column 2, line 47; column 4, lines 27-column 6, line 44; column 6, line 62-column 8, line 29; column 8, line 58-column 9, line 36; column 10, lines 5-45; column 11, line 30-column 12, line 15; column 13, lines 1-46).

6. Bertin does not describe the properties of the peroxides used. However, since the instant application states that 2,5-bis-(t-butylperoxy)-2,5-dimethyl-hexane satisfies the half-life limitations as recited in claims 1-2 (see instant specification: page 10, lines 21-25; page 11, lines 29-33), it is assumed that dialkyl peroxides satisfy the two peroxide properties claimed: having a half life longer than dicumyl peroxide or subject to formation of methyl radicals to a lesser degree than dicumyl peroxide.

7. Betrin does not recite the stable free radicals suppressing degradation or crosslinking. However, since Betrin teaches the same composition as claimed, and the suppression of polymer degradation or crosslinking is an inherent property of the composition, it is therefore inherent that the composition of Betrin suppresses degradation and crosslinking since such properties are evidently dependent on the nature of the composition used. Case law holds that a material and its properties are inseparable. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

8. As to claims 5-6, Bertin teaches using 4-hydroxy-TEMPO, which has a hydroxy functional group (column 4, lines 27-column 6, line 44; column 11, line 30-column 12, line 15; column 13, lines 1-46).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-2, 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boutillier (US 6,255,402) in view of Bertin (WO 00/63260). As the cited WO patent is in a non-English language, the English equivalent, US 6,620,892 (hereafter "Bertin") has been utilized in place of WO '260. All column and line number citations are made with respect to the above-mentioned US document. The discussion with respect to Bertin as set forth in paragraphs 4-8 above is incorporated here by reference.

11. As to claims 1-2, Boutillier teaches attaching bifunctional stable free radicals to elastomer chains using peroxides, such as di(tBu-peroxy)cyclohexane, and generating free radicals on polymers (abstract; column 3, lines 1-65; column 5, lines 35-67; column 7, lines 51-52). Boutillier does not teach the specific claimed peroxides.

12. In view of Bertin's recognition that di(tBu-peroxy)cyclohexane and 2,5-bis-(t-butylperoxy)-2,5-dimethyl-hexane are equivalent and interchangeable, it would have been obvious to one of ordinary skill in the art to substitute di(tBu-peroxy)cyclohexane with 2,5-bis-(t-butylperoxy)-2,5-dimethyl-hexane and thereby arrive at the present invention. Case law holds that the mere substitution of an equivalent (something equal in value or meaning, as taught by analogous prior art) is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable. See MPEP 2144.06, *In re Ruff* 118 USPQ 343 (CCPA 1958).

13. Boutillier does not describe the properties of the peroxides used. However, since the instant application teaches using dialkyl peroxides (page 10, lines 21-25; page 11, lines 29-33 of the instant specification), it is assumed that dialkyl peroxides satisfy the two peroxide properties claimed: having a half life longer than dicumyl peroxide or subject to formation of methyl

radicals to a lesser degree than dicumyl peroxide. Boutillier teaches two alkyl peroxides, di(tBu-peroxy)cyclohexane and di(tBu-peroxy)trimethylcyclohexane (column 7, lines 51-52). Because the instant application gives no guidance to which peroxides have the claimed properties and the peroxides taught by Boutillier are alkyl peroxides very similar to the peroxides disclosed by the instant application, bis(tBu-peroxy)dimethylhexane, one would expect them to have the same properties of having a half life longer than dicumyl peroxide and subject to formation of methyl radicals to a lesser degree than dicumyl peroxide.

14. Boutillier does not describe the stable free radicals suppressing degradation or crosslinking. However, since Boutillier uses butadiene/styrene polymers (column 7, lines 1-4), peroxides (column 3, lines 18-33), and stable free radicals (column 5, lines 31-67), and the suppression of polymer degradation or crosslinking is an inherent property of the composition, it is therefore inherent that the composition of Boutillier suppresses degradation and crosslinking since such properties are evidently dependent on the nature of the composition used. Case law holds that a material and its properties are inseparable. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

15. As to claims 5-6, Boutillier teaches stable free radicals with hydroxyl groups (column 6, lines 20-22).

Response to Arguments

16. Applicant's arguments with respect to the reference Boutillier (US 6,255,402) used in an anticipation rejection have been fully considered and are persuasive. Therefore, the anticipation rejection based on Boutillier has been withdrawn. However, this does not preclude the use of Boutillier in the obviousness rejection stated above.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT C. BOYLE whose telephone number is (571)270-7347. The examiner can normally be reached on Monday-Thursday, 9:00AM-5:00PM Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROBERT C BOYLE/
Examiner, Art Unit 1796

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796